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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/765,039 | 01/28/2004 | Chao-Hsuan Chuang | MR2707-58 | 9615 |
| 4586 7590 10/16/2007 ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLICOTT CITY, MD 21043 | | | | |
| | | | EXAMINER LAO, LUN YI | |
| | | | ART UNIT 2629 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/765,039

Applicant(s)

CHUANG ET AL.

Examiner

LUN-YI LAO

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17 is/are allowed.
- 6) ☒ Claim(s) 18, 19, 21-23, 26 and 28-30 is/are rejected.
- 7) ☒ Claim(s) 20, 24, 25, 27 and 31-33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 18-19, 21-23, 26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al(20020158862) in view of Koyama et al(5,680,149).

As to claims 18-19, 21-23, 26 and 28-30, Chen et al teach a gamma voltage generator(see figure 5) for generating a plurality of individually tunable gamma voltages corresponding to a symmetric gamma curve(see figure 3), the generator(see figure 5) comprising means for generating a common gamma voltage(V_{com} , 6V) and a plurality of first and second gamma voltages(4V, 8V) proportional to the plurality of gamma currents with the common gamma voltage(V_{com}) as a center axis for the plurality of first and second gamma voltages(4V, 8V) distributed substantially symmetric to each other; wherein the common gamma voltage and the plurality of first and second gamma voltages are provided for the gamma voltages corresponding to the gamma curve(see figures 2-5 and paragraphs 4-5, 26, 28 and 29).

Chen et al fails to disclose a current source and a current mirror.

Koyama et al teach a buffer circuit having a current source(108) and a current mirror(see figures 1, 3 and column 4, lines 23-51). It would have been obvious to have modified Chen et al with the teaching of Koyama et al, since Chen et al have disclose a gamma voltage generator having a buffer circuit(201)(see figure 5 and paragraph 28) and current mirrors could work in a temperature-stable manner.

As to claim 19, Chen et al teach the plurality of gamma currents (current is proportional to voltage) have a substantially same magnitude(see figure 3).

As to claims 21 and 29, Chen et al as modified teach the current source comprises an adjustable resistive element(V_r) connected with a reference voltage(V_{cc} or V_{GND}) for generating the reference current(see figure 4 and paragraphs 25-26).

As to claims 22 and 30, Chen et al as modified teach the current source comprises a resistive element(R_a , R_b , V_r or R_1 - R_4) connected with an adjustable reference voltage(V_{cc}) for generating the reference current(see figures 3-5, paragraphs 5 and 25-29).

As to claim 23, Chen et al as modified teach the means for generating a common gamma voltage(V_{com} , $(V_{cc}+V_{GND})/2=6V$) and a plurality of first and second gamma voltages(4V, 8V) comprises means for transforming the plurality of gamma currents to the common gamma voltage(6V) and the plurality of first and second gamma voltages(4V, 6V)(see figures 3-5, paragraphs 5 and 25-29).

As to claim 28, Chen et al as modified teach the step of applying the plurality of gamma currents each flowing through an adjustable resistive element(V_r) to generate the common gamma voltage(V_{com} , 6V), one of the plurality of first gamma

voltages(e.g. 4V), or one of the plurality of second gamma voltages(e.g. 6V)(see figures 3-5, paragraphs 5 and 25-29).

Response to Arguments

3. Applicant's arguments filed on September 5, 2007 have been fully considered but they are not persuasive.

Applicants argue that Chen et al does not generate the common voltage in the circuit on page 17. The examiner disagrees with that since Chen teach the common voltage in the circuit($V_{com}=(V_{CC}+V_{GND})/2$)(see figures 2-4 and paragraphs 4 and 26).

Applicants argue that Koyama et al fail to disclose the mirroring the reference current supplied by current source to generate a plurality of gamma currents on page 17. However, the combination of Chen et al and Koyama et al teach such feature(see paragraph #2 above).

Applicants argue that the combination of Chen and Koyama do not teach a current mirror for mirroring the reference current to generate a plurality of gamma current and means for generating a common gamma voltage proportional to the gamma current to with the common gamma voltage as a center axis for the plurality of first and second gamma voltages distributed substantially symmetric to each other on page 18. The examiner disagrees with that since the combination of Chen and Koyama teaches teach a current mirror for mirroring the reference current to generate a plurality of gamma current and means for generating a common gamma voltage(see

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Chen's figure 3) proportional(which is same as applicants'(see applicants' figure 5)) to the gamma current to with the common gamma voltage as a center axis for the plurality of first and second gamma voltages distributed substantially symmetric to each other(see paragraph #2 above; Chen's figures 2-4; paragraphs 8-11, 23-24 and 29; and Koyama's figures 1, 3 and column 4, lines 23-51).

Allowable Subject Matter

4. Claims 20, 24, 25, 27 and 31-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claim 1-17 are allowable since none of cited references teach a gamma voltage generator having a plurality of adjustable voltage sources for providing an adjustable common voltage and a plurality of adjustable voltages to further derive a common gamma voltage and a plurality of first gamma voltages therefrom; and a mirror mapping circuit for mapping each of the plurality of first gamma voltages with the common gamma voltage as a reference to thereby generate a plurality of mapped voltages to further derive a plurality of second gamma voltages, with all other limitation cited in claims 1 and 10.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kudo et al(7,193,637) teaches a display device having a symmetric gamma curve.

Kudo et al(20020186231) teaches a display device having a symmetric gamma curve.

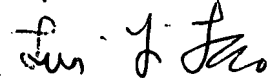
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lun-yi Lao whose telephone number is 571-272-7671. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 12, 2007



Lun-yi Lao

Primary Examiner